

WHAT IS CLAIMED IS:

1. A solvent-free binder mixture comprising a hydrophobic polyether polyacrylate (A) including the reaction product of the components comprising

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- (A1) a mixture of non-hydroxy-functional acrylic and styrenic monomers or copolymers thereof,
- (A2) hydroxy-functional polyethers (A2),
- (A3) if desired, hydroxy-functional compounds having a molecular weight M_n of from 32 to 1000 which are other than (A2),

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wherein the solvent-free binder mixture has a water absorption of less than 8%,
(measured after 21 days and at 23°C).

15 2. The solvent-free binder mixture according to Claim 1, characterized in that
the water absorption is less than 5%.

3. The solvent-free binder mixtures according to Claim 1, wherein the
hydrophobic polyether polyacrylate (A) further comprises a fatty alcohol (B).

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4. The solvent-free binder mixtures according to Claim 3, characterized in
that the fatty alcohol (B) is castor oil.

25 5. The solvent-free binder mixtures according to Claim 1, characterized in
that the viscosity of the binder mixtures is from 200 to 3000 mPa.s (at 23°C) and
the OH content is from 3 to 10% by weight.

30 6. The solvent-free binder mixtures according to Claim 1, characterized in
that component (A2) comprises polyetherpolyols having 2 or more hydroxyl
groups per molecule.

7. The solvent-free binder mixtures according to Claim 1, characterized in that component (A2) comprises polyethers composed of at least 50%, based on the sum of their repeating units, of repeating units of the structure -CH(CH₃)CH₂O-.

5 8. A Process for preparing solvent-free binder mixtures comprising the steps of providing

(A1) a mixture of non-hydroxy-functional acrylic and styrenic monomers or copolymers thereof,

(A2) hydroxy-functional polyethers (A2),

10 (A3) optionally, hydroxy-functional compounds having a molecular weight M_n of from 32 to 1000 which are other than (A2),

introducing and heating at least a portion of component (A2) adding the monomer mixture (A1) to the portion of (A2),

15 adding at least a portion of component (A3) to the portion of (A2), and metering any remaining fractions of components (A2) and (A3), and a polymerization initiator (D) into the mixture of (A1), (A2) and (A3) to effect polymerization.

20 9. The process according to Claim 8, characterized in that after the polymerization a fatty alcohol (B) is added.

10. A two-component polyurethane coating compositions comprising the binder mixtures according to Claim 1 and a polyisocyanate (C), wherein the

25 NCO:OH equivalents ratio is from 0.5:1 to 2.0:1.

11. A two-component polyurethane coating comprising binder mixtures according to Claim 1.

30 12. The two-component polyurethane coatings according to Claim 11, characterized in that the coatings have a Shore D hardness of at least 50 according to DIN 53505.

13. A method of protecting metallic or mineral substrates comprising applying the solvent-free binder mixtures according to Claim 1 to a metallic substrate or a mineral substrate to produce a coating thereon.

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14. A Substrate coated with the coating composition comprising solvent-free binder mixtures according to Claim 1.